

Appl. No. 10/740,073
Amdt. dated 1/5/07
Reply to Office action of 10/6/06

CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-8 (canceled).

Claim 9 (currently amended). A carbon fiber-reinforced coke, comprising:

a mixture of:

a proportion of cut carbon fibers being surface-oxidized or non-surface-oxidized or stabilized precursor fibers for forming PAN-based carbon fibers, and at least one of the following being true for said cut carbon fibers or stabilized precursor fibers upon entering the delayed coker, said fibers or precursor fibers:

not being provided with a sizing; or

being provided with a sizing selected from the group consisting of sizings for satisfying objectives of various textile processes; or

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being provided with a sizing selected from the groups
consisting of:

waxes, montan waxes, and waxes produced
synthetically by esterification of fatty alcohols
with long-chain fatty acids containing 12 to 40
carbon atoms;

polyurethane, phenolic, polyester, and epoxy
resins; and

low-viscosity pitches and pitches dissolved in
organic solvents;

feedstock for a delayed coking process, said feedstock
~~comprising~~ including a material selected from the group
consisting of highly aromatic residues of vacuum
distillation, residues of visbreaking, residues of a
fluidized catalytic cracking process, residues of
thermocracking, residues of ethylene pyrolysis, soft
pitches produced from coal coking or by distillation of
highly aromatic coal residues;

the mixture having been coked in a delayed coker;

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said feedstock, upon entering the delayed coker, containing at most 4% by weight of said cut carbon fibers or at most 8% by weight of said stabilized precursor fibers; and

the coke having a coefficient of thermal expansion with values of at most $0.15 \times 10^{-6} \text{K}^{-1}$, measured on specimens produced in accordance with DIN 51930 in an extrusion direction and in accordance with DIN 51909.

Claim 10 (previously presented). The carbon fiber-reinforced coke according to claim 9 formed as needle coke.

Claim 11 (canceled).

Claim 12 (previously presented). The carbon fiber-reinforced coke according to claim 9, wherein said cut carbon fibers or stabilized precursor fibers, upon entering the delayed coker, are from 1 to 30 mm long.

Claims 13 and 14 (canceled).

Claim 15 (previously presented). The carbon fiber-reinforced coke according to claim 9, wherein said waxes are polyolefin waxes based on polyethylene or polypropylene.

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Claim 16 (previously presented). The carbon fiber-reinforced coke according to claim 9, wherein the coke is calcined with a calcining device selected from the group consisting of a rotary tube calciner, a rotary plate calciner, a gas calciner, and an electric calciner.

Claim 17 (previously presented). The carbon fiber-reinforced coke according to claim 9, wherein said proportion of carbon fibers is less than 20% by weight of the coke.

Claim 18 (canceled).

Claim 19 (previously presented). A carbon product, comprising a polygranular carbon body formed with the carbon fiber-reinforced coke according to claim 9 and containing at least 70% by weight of carbon.

Claim 20 (previously presented). The carbon product according to claim 19, wherein said carbon fiber-reinforced coke is a needle coke.

Claim 21 (previously presented). The carbon product according to claim 19, wherein said polygranular carbon is amorphous carbon or graphitized carbon.

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Claim 22 (previously presented). The carbon product according to claim 19 formed as a carbon electrode, as a connection piece for a carbon electrode, as a fine-grain graphite and a reactor graphite, as a blast-furnace brick, or as electrodes for aluminum fused-salt electrolysis.

Claim 23 (withdrawn - currently amended). A method of producing carbon fiber-reinforced coke, which comprises:

mixing surface-oxidized or non-surface-oxidized cut carbon fibers or stabilized precursor fibers for forming PAN-based carbon fibers into a flow of incoming feedstock to a delayed coking process to form a mixture, the feedstock being selected from the group of highly aromatic residues of vacuum distillation, of visbreaking, of the fluidized catalytic cracking process, of thermocracking, of ethylene pyrolysis or soft pitches produced from coal coking or by distillation of the highly aromatic coal residues;

at least one of the following being true for the cut carbon fibers or stabilized precursor fibers upon entering the delayed coker, the fibers or precursor fibers:

not being provided with a sizing; or

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being provided with a sizing selected from the group consisting of sizings for satisfying objectives of various textile processes; or

being provided with a sizing selected from the groups consisting of:

waxes, montan waxes, and waxes produced synthetically by esterification of fatty alcohols with long-chain fatty acids containing 12 to 40 carbon atoms;

polyurethane, phenolic, polyester, and epoxy resins; and

low-viscosity pitches and pitches dissolved in organic solvents; and

coking the mixture in a delayed coker;

the feedstock, upon entering the delayed coker, containing at most 4% by weight of the cut carbon fibers or at most 8% by weight of the stabilized precursor fibers; and

the coke having a coefficient of thermal expansion with values of at most $0.15 \times 10^{-6} \text{K}^{-1}$, measured on specimens

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produced in accordance with DIN 51930 in an extrusion
direction and in accordance with DIN 51909.

Claim 24 (withdrawn). The method according to claim 23,
which comprises forming carbon fiber containing needle coke.